

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
28 March 2002 (28.03.2002)

PCT

(10) International Publication Number
WO 02/24275 A3

(51) International Patent Classification⁷: **A61N 1/39**

(21) International Application Number: **PCT/US01/29106**

(22) International Filing Date:
14 September 2001 (14.09.2001)

(25) Filing Language: **English**

(26) Publication Language: **English**

(30) Priority Data:
09/663,606 18 September 2000 (18.09.2000) **US**

(71) Applicant (for all designated States except US):
CAMERON HEALTH, INC. [US/US]: 924-A Calle
Negocio, San Clemente, CA 92673 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **BARDY, Gust, H.**

[US/US]: 2518 Constance Drive West, Seattle, WA 98199
(US). **CAPPATO, Riccardo** [IT/IT]: Via Flavio Testi, 22,
I-44100 Ferrara (IT).

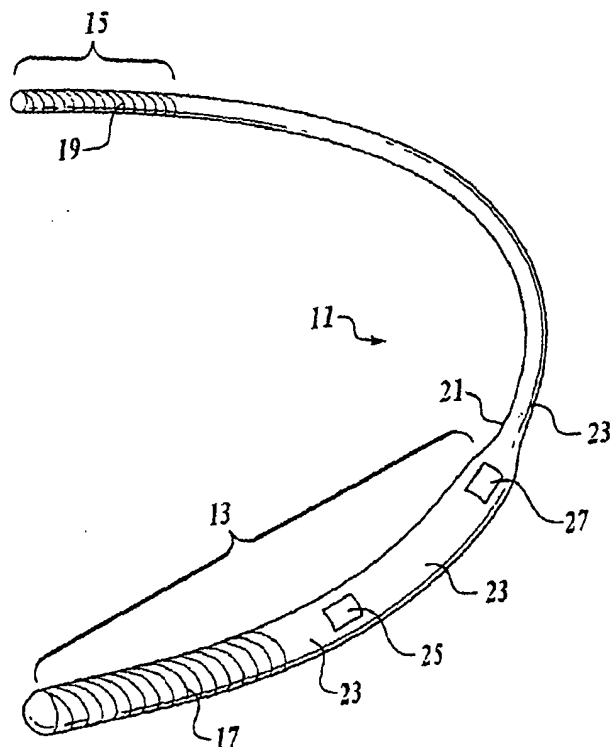
(74) Agents: **PETTIT, Jonathan, L.** et al.: Brobeck, Phleger
& Harrison, 12390 El Camino Real, San Diego, CA 92130
(US).

(81) Designated States (national): AE, AG, AL, AM, AT, AU,
AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU,
CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC,
LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW,
MX, MZ, NO, NZ, PH, PL, PT, RO, RU, SD, SE, SG, SI,
SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU,
ZA, ZW.

(84) Designated States (regional): ARIPO patent (GH, GM,
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian
patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European

[Continued on next page]

(54) Title: **UNITARY SUBCUTANEOUS ONLY IMPLANTABLE CARDIOVERTER-DEBRIBILLATOR AND OPTIONAL PACER**



(57) Abstract: A unitary subcutaneous implantable cardioverter-defibrillator is disclosed which has a long thin housing in the shape of a patient's rib. The housing contains a source of electrical energy, a capacitor, and operational circuitry that senses the presence of potentially fatal heart rhythms. Provided on the housing are cardioversion/defibrillation electrodes located to deliver electrical cardioversion-defibrillation energy when the operational circuitry senses a potentially fatal heart rhythm. The unitary subcutaneous implantable cardioverter-defibrillator does not have a transvenous, intracardiac, epicardial, or subcutaneous electrode.

WO 02/24275 A3



patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(88) Date of publication of the international search report:

30 May 2002

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 01/29106

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 A61N1/39

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A61N A61B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 385 574 A (HAUSER ROBERT G ET AL) 31 January 1995 (1995-01-31) the whole document	1, 35, 69, 85, 96, 102, 103, 105-108
A	US 4 157 720 A (GREATBATCH WILSON) 12 June 1979 (1979-06-12) the whole document	1, 35, 69, 85, 96, 102, 103, 105-108
A	EP 0 627 237 A (TRABUCCO HECTOR OSVALDO ; GAVRIELIDES JORDAN (DE)) 7 December 1994 (1994-12-07) the whole document	1, 35, 69, 85, 96, 102, 103, 105-108



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

* Special categories of cited documents:

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *&* document member of the same patent family

Date of the actual completion of the international search

14 March 2002

Date of mailing of the international search report

21/03/2002

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl.
Fax: (+31-70) 340-3016

Authorized officer

Ferrigno, A

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 01/29106

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 331 966 A (BENNETT TOM D ET AL) 26 July 1994 (1994-07-26) the whole document ---	1, 35, 69, 85, 96, 102, 103, 105-108
Y	WO 99 53991 A (ALZA CORP) 28 October 1999 (1999-10-28) the whole document ---	113
Y	US 6 093 173 A (BALCETA JOBERT P ET AL) 25 July 2000 (2000-07-25) the whole document ---	113
A	WO 97 29802 A (LOEB GERALD E ; RICHMOND FRANCES J R (CA); ADVANCED BIONICS CORP (U) 21 August 1997 (1997-08-21) the whole document -----	113

FURTHER INFORMATION CONTINUED FROM PCT/SA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1-31,35-108

unitary subcutaneous implantable cardioverter-defibrillator

2. Claim : 113

apparatus for implanting an implantable
cardioverter-defibrillator

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 01/29106

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 5385574	A	31-01-1995	US 5133353 A AT 168024 T AU 641224 B2 AU 7354591 A CA 2040800 A1 DE 69129716 D1 DE 69129716 T2 DK 453761 T3 EP 0453761 A1 ES 2120411 T3 JP 5064666 A US 6157860 A US 5713926 A US 6280462 B1 US 5916238 A	28-07-1992 15-07-1998 16-09-1993 07-11-1991 26-10-1991 13-08-1998 24-12-1998 19-04-1999 30-10-1991 01-11-1998 19-03-1993 05-12-2000 03-02-1998 28-08-2001 29-06-1999
US 4157720	A	12-06-1979	AU 521296 B2 AU 3986278 A CA 1120548 A1 DE 2840307 A1 FR 2403075 A1 GB 2004188 A ,B IL 55526 A JP 54060791 A MX 146747 A NL 7809422 A SE 7809645 A	25-03-1982 20-03-1980 23-03-1982 29-03-1979 13-04-1979 28-03-1979 31-03-1981 16-05-1979 05-08-1982 20-03-1979 17-03-1979
EP 0627237	A	07-12-1994	US 5243977 A EP 0627237 A1	14-09-1993 07-12-1994
US 5331966	A	26-07-1994	AU 654552 B2 AU 1750692 A CA 2106378 A1 DE 69210395 D1 DE 69210395 T2 EP 0578748 A1 JP 2655204 B2 JP 6505662 T WO 9217240 A1	10-11-1994 02-11-1992 06-10-1992 05-06-1996 09-01-1997 19-01-1994 17-09-1997 30-06-1994 15-10-1992
WO 9953991	A	28-10-1999	AU 3748899 A TW 442273 B WO 9953991 A1	08-11-1999 23-06-2001 28-10-1999
US 6093173	A	25-07-2000	NONE	
WO 9729802	A	21-08-1997	WO 9729802 A2 US 6185455 B1 US 6214032 B1 US 6051017 A	21-08-1997 06-02-2001 10-04-2001 18-04-2000